

REMARKS

I. Status of the Application

Claims 1-27 are pending in this application. In the May 20, 2003 office action, the Examiner:

1. Withdrew claims 17 and 24-27 from further consideration as being drawing to a nonelected species, and there allegedly being no allowable generic or linking claim;
2. Rejected claims 1-6, 10 and 18-23 (and presumably 7-9) under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite;
3. Rejected claims 11-13 and 18-20 under the judicially created doctrine of obviousness-type double patenting, over claims 11-12 and 14-16 of U.S. Patent No. 6,304,447 in view of WIPO Publication No. WO 98/28961 to Magnet-Motor Gesellschaft fur Magnetomotorische Technik MBH (hereinafter "Wickelmaier");
4. Rejected claims 14-16 and 21-22 under the judicially created doctrine of obviousness-type double patenting, over claims 11-12 and 14-16 of U.S. Patent No. 6,304,447 in view of Wickelmaier, in further view of U.S. Patent 4,684,328 to Murphy et al. (hereinafter "Murphy");
5. Rejected claims 11-13, 18 and 20 under 35 U.S.C. § 103(a) as allegedly being obvious over Wickelmaier in view of U.S. Patent No. 4,302,793 to Rohner (hereinafter "Rohner");
6. Rejected claims 14-16 and 21-22 under 35 U.S.C. § 103(a) as allegedly being obvious over Wickelmaier in view of Rohner in further view of Murphy; and

7. Rejected claim 19 under 35 U.S.C. § 103(a) as allegedly being obvious over Wickelmaier in view of Rohner in further view of U.S. Patent No. 6,052,284 to Suga et al.

In this response, applicants have amended claims 1, 18 and 20 to clarify the claimed subject matter. Applicants otherwise traverse the prior art rejections and request favorable reconsideration of the claims in view of the foregoing amendments and the following remarks.

II. The Indefiniteness Rejections Should Be Withdrawn

Claims 1-6, 10 and 18-23 stand rejected as allegedly being indefinite. In particular, the Examiner specifically alleged a lack of sufficient antecedent bases in claims 1 and 18, and further required correction of grammar in claim 20. It appears that claims 2-6, 19 and 21-23 stand rejected based on their dependency on one of the rejected claims 1 or 18.

With regard to claim 20, applicants have amended that claim to correct what amounts to be an inadvertent typographical error. Specifically, the phrase “at least on aperature” now reads “at least one aperture”. It is respectfully submitted that the amendment addresses the Examiner’s requirement for a correction of grammar to claim 20.

With regard to claims 1 and 18, applicants have amended claims 1 and 18 to replace the phrase “the fluid type barrier”. In particular, the applicants have amended claim 1 and 18 to better define the invention, replacing certain instances of “fluid tight

barrier” with “enclosure”. Applicants’ attorney believes the claim is improved in clarity by this amendment, but desires the Examiner to contact Applicants’ attorney if there is any objection to the amendment.

In any event, the amendments presented herein to claims 1, 18 and 20 address the specific objections stated by the Examiner in the May 20, 2003 office action.

Accordingly, it is respectfully submitted that the indefiniteness rejections of claims 1-6, 10, and 18-23 should now be withdrawn.

III. The Double Patenting Rejection of Claims 11-13 and 18-20 Should be Withdrawn

In the May 20, 2003 office action, the Examiner rejected claims 11-13 and 18-20 under the judicially created doctrine of obviousness-type double patenting. In particular, the Examiner stated that claims 11-13 and 18-20 were obvious over claims 11-12 and 14-16 of U.S. Patent No. 6,304,447 in view of Wickelmaier.

Applicants respectfully traverse. It is respectfully submitted that the Examiner has failed to allege a prima facie case of obviousness-type double patenting because the Examiner has mischaracterized the teachings of Wickelmaier. Thus, the premise underlying the Examiner’s allegation of motivation or suggestion to combine is in error.

In particular, the Examiner’s reasoning for the double patenting rejection is set forth below:

The [6,304,447] patent claims all the claimed limitations of the application except an electromechanical actuator.

Wickelmaier et al discloses an electronic assembly comprising a substrate 2 with components 4; and a circulating fluid via electromechanical actuator 8 for the purpose of improving heat exchange.

. . . .

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the patent an electromechanical actuator

piezoelectric actuator for the purpose of improving heat exchange as recognized by Wickelmaier et al.

(May 20, 2003 office action at p.3)

It is respectfully submitted that Wickelmaier does not disclose “a circulating fluid via electromechanical actuator 8”, as alleged by the Examiner. Wickelmaier discloses a fan 8 that circulates *air*, not liquid. There does not appear to be any teaching in the art that the fan of Wickelmaier is suitable for use in liquids. Furthermore, fans designed for air cooling purposes are generally not suitable for circulating liquids.

Accordingly, the double-patenting obviousness rejection is based on an incorrect premise that Wickelmaier teaches fluid circulation using an electromechanical actuator. Specifically, 1) Wickelmaier neither suggests nor implies *fluid* circulation at all, and 2) the actuator employed by Wickelmaier is unsuitable for use in a liquid. Thus, not only has the Examiner failed to allege a legally sufficient motivation or suggestion to combine, there simply is no motivation or suggestion to combine such incompatible technologies.

Therefore, one of ordinary skill in the art would *not* use the electromechanical actuator (i.e. the fan 8) of Wickelmaier to move the liquid of claims 11-12 and 14-16 of U.S. Patent No. 6,304,447. As a consequence, it is respectfully submitted that the obviousness-type double patenting rejection of claims 11-13 and 18-20 should be withdrawn.

IV. The Double Patenting Rejection of Claims 14-16 and 21-22 Should be Withdrawn

The Examiner also rejected claims 14-16 and 21-22 under the judicially created doctrine of obviousness-type double patenting. In particular, the Examiner stated that claims 14-16 and 21-22 were obvious over claims 11-12 and 14-16 of U.S. Patent No. 6,304,447 in view of Wickelmaier, in further view of Murphy.

The Examiner's rejection is based on the underlying combination of U.S. Patent No. 6,304,447 and Wickelmaier using the same reasoning as that applied in the rejection of claims 11-13 and 18-20. As discussed above, however, there is no motivation or suggestion to combine the teachings of claims 11-12 and 14-16 of U.S. Patent No. 6,304,447 and Wickelmaier as proposed by the Examiner. Accordingly, for at least the same reasons as those set forth above in connection with claims 11-13 and 18-20, it is respectfully submitted that the obviousness-type double patenting rejection of claims 14-16 and 21-22 should be withdrawn.

V. Claims 11-13, 18 and 20 are not Obvious Over the Proposed Combination of Wickelmaier and Rohner

In the May 20, 2003 office action, the Examiner rejected claims 11-13, 18 and 20 as allegedly being obvious over Wickelmaier in view of Rohner. Applicants respectfully traverse. As will be discussed in further detail below, there is no motivation or suggestion to combine the teachings of Wickelmaier and Rohner as proposed by the Examiner. Indeed, to the extent there is *any* motivation or suggestion to combine Wickelmaier or Rohner, the resulting combination would not arrive at the invention. Specifically, Rohner teaches away from the proposed combination and towards a

combination that does not arrive at the claimed invention.

The Examiner's reasoning for the obviousness rejection of claims 11-13, 18 and 20 over Wickelmaier in view of Rohner is set forth below:

Wickelmaier et al discloses all the claimed limitations except liquid as the working fluid.

Rohner discloses an electronic assembly comprising a substrate 12 with components 10; and a circulating liquid 44 pump 32 for the purpose of improving heat exchange.

Since Wickelmaier et al and Rohner are both from the same field of endeavor and/or analogous art, the purpose disclosed by Rohner would have been recognized in the pertinent art of Wickelmaier et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Wickelmaier et al a circulating liquid for the purpose of improving heat exchange as recognized by Rohner.

(May 20, 2003 office action at p.4).

A. Claim 11

Claim 11 recites a method that includes a step of "employing an electromechanical actuator disposed within the enclosure member to assist in advancing . . . liquid through an aperture". In the above-quoted excerpt of the Office Action, the Examiner appears to allege that the fan 8 of Wickelmaier constitutes an electromechanical actuator disposed within an enclosure member. The Examiner further appears to further allege that Rohner teaches use of a liquid or fluid, and that one would be motivated to use the liquid of Rohner with the structure of Wickelmaier.

Applicants submit that even if Rohner provided the suggestion to use a circulating fluid in the Wickelmaier device, Rohner teaches the use of such a circulating liquid *with an external pump*, not with an internal fan such as that shown in Wickelmaier. In other words, even assuming Rohner teaches that liquid cooling provides improved heat exchange as alleged by the Examiner, such a teaching does *not* suggest simply placing

liquid in the fan-driven air-cooled system of Wickelmaier. At best, Rohner teaches wholesale replacement of the air-cooled *system of Wickelmaier* with the liquid-cooled *system* of Rohner.

Replacing the air-cooled system of Wickelmaier with the liquid-cooled system Rohner would not result in the use of an electromechanical actuator disposed with in the enclosure member, as called for in claim 11. In particular, the liquid-cooled system of Rohner employs an external pump. (See Rohner, Fig. 1, element 32). Thus, any modification of Wickelmaier that is suggested by Rohner would necessarily involve the replacement of the fan 8 of Wickelmaier with the external pump 32 of Rohner.

Such a combination would *not* arrive at an invention that includes the step of “employing an electromechanical actuator *disposed within the enclosure member* to assist in advancing the first portion of liquid . . .” as called for in claim 11. As a consequence, there is no motivation or suggestion to combine Wickelmaier and Rohner *in the manner proposed by the Examiner*.

Further to this point, Rohner teaches away from retaining a fan from an air-cooled system when the air-cooled system is replaced with a fluid-cooled system. In particular, Rohner teaches an improvement over an air-cooled fan system that *replaces* the fan-based air-cooled system with a liquid-cooled system that includes an external pump. This liquid-cooled system does not retain the fan of the air-cooled system. (See Rohner at col. 1, lines 14-18, lines 29-32, lines 36-39 and lines 47-59; element 32 of Fig. 1). Thus, Rohner appears to teach away from a liquid-cooled system that uses a fan to move the liquid within the system.

For the foregoing reasons, it is respectfully submitted that no motivation or

suggestion exists to modify Wickelmaier by replacing the cooling air with cooling liquid while keeping the internally-located fan. Any modification of Wickelmaier suggested by Rohner, to the extent there is any, would also involve replacement of the fan of Wickelmaier with the external pump of Rohner. Such a modification of Wickelmaier would not arrive at the invention of claim 11. As a consequence, the obviousness rejection of claim 11 that is based on Wickelmaier and Rohner is in error and should be withdrawn.

B. Claims 12 and 13

As discussed above, claims 12 and 13 stand rejected over Wickelmaier in view of Rohner. Claims 12 and 13 depend from and incorporate all of the limitations of claim 11. Accordingly, for at least the same reasons as those set forth above in connection with claim 11, it is respectfully submitted that the obviousness rejection of claims 12 and 13 that is based on Wickelmaier and Rohner is in error and should be withdrawn.

C. Claim 18

Claim 18 likewise stands rejected over Wickelmaier in view of Rohner. Similar to claim 18 recites a limitation directed to “at least one electromechanical actuator secured within the compartment, the electromechanical actuator operable to generate a flow movement of the liquid. . .” As discussed above, there is no motivation or suggestion to combine Wickelmaier and Rohner in a way that would include an electromechanical sensor within a fluid-containing compartment.

Accordingly, for essentially the same reasons as those set forth above in

connection with claim 11, it is respectfully submitted that the rejection of claim 18 that is based on Wickelmaier and Rohner is in error and should be withdrawn.

D. Claim 20

Claim 20 also stands rejected over Wickelmaier in view of Rohner. Claim 20 depends from and incorporates all of the limitations of claim 18. Accordingly, for at least the same reasons as those set forth above in connection with claim 18, it is respectfully submitted that the obviousness rejection of claim 20 that is based on Wickelmaier and Rohner is in error and should be withdrawn.

VI. The Rejections of Claims 14-16, 19 and 21-22
Based on Wickelmaier and Rohner Should be Withdrawn

Claims 14-16, 19 and 21-22 all stand rejected for combinations of prior art references that include a combination Wickelmaier and Rohner as applied to claims 11 and 18, discussed above. As discussed above in connection with claims 11 and 18, Wickelmaier and Rohner are not properly combinable in a manner that arrives at the claimed invention of either claim 11 or 18. Claims 14-16 and 19 all depend from and incorporate all of the limitations of claim 11, and claims 21 and 22 both depend from and incorporate all of the limitations of claim 18. Accordingly, for at least the same reasons as those set forth above in connection with claims 11 and 18, it is respectfully submitted that the obviousness rejections of claims 14-16, 19 and 21-22 that are based on Wickelmaier and Rohner are in error and should be withdrawn.

VII. Conclusion

For all of the foregoing reasons, it is respectfully submitted that the application is in a condition for allowance. Favorable reconsideration and allowance of this application is, therefore, earnestly solicited.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'H. C. Moore', written over a horizontal line.

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